

Method for manufacturing a combined solid immersion lens (SIL) and submicron aperture, and device thereof

Abstract

The invention relates to an integrated method for manufacturing a combined solid immersion lens (SIL) and submicron aperture, and device thereof, comprising depositing a sacrificial layer on a substrate, coating a photoresist on the sacrificial layer and using photo - lithography to form an aperture on the photoresist, applying reflow and etching process to remove the sacrificial layer below the aperture, depositing a conductive material on the photoresist and performing electroplating to reduce the aperture size, then coating another photoresist and using photo - lithography to form a cylindrical photoresist above the aperture, applying a high temperature thermal reflow to form a microlens, and finally removing the substrate to obtain an optical read/write apparatus with a combined solid immersion lens (SIL) and submicron aperture.

(Fig. 5I)